How To Use This Manual

There is one manual shipped with every HMI Background Mode Debugger (BMD) system that is configured for Windows operation: ***SourceGate™II Background Mode Debugger User's Guide***. This manual should be consulted for information on how to operate the SourceGate II BMD in the Windows environment. Instructions on how to use all BMD variations will be outlined here.

An extra document, ***SourceGate™II for HMI Background Mode Debuggers (BMDs) User's Guide Addendum*** should also be consulted for the latest changes and updates to the SourceGate II program.

If you find any errors, or if you have a suggestion on how to improve these documents, please contact HMI technical support at 205-881-6005.

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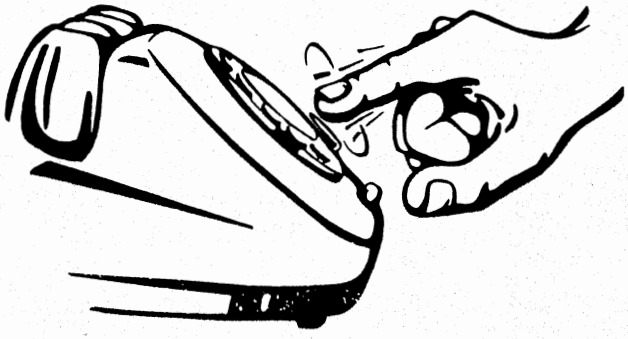

CALL US!

If you experience difficulty with this product, please call our TECH SUPPORT LINE.

(205) 881-6005

You may also contact us on INTERNET at:

support@hmi.com

or transfer files to our FTP Server on INTERNET at:

ftp.hmi.com

We also maintain a Bulletin Board which may used for file transfer purposes at:

(205) 881-7395

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SourceGate II Version 2.0.1
For Microsoft Windows
Release Notes

1.0 Purpose

This document outlines relevant information including any known problems in this release of SourceGate II.

If you have any questions or problems, please contact HMI Technical Support at (205) 881-6005 or via Internet E-mail at the address 'support@hmi.com'.

2.0 Using The HMICOMM.DRV Driver (Not Applicable For BMDs and Simulators)

During the installation process, the installer will ask if you want to install the HMI Communications Driver 'hmicomm.drv' into your 'system.ini' file. This driver replaces the standard Windows serial port driver, 'comm.drv'. If you elect not to install this driver, the installer will print a warning message that baud rates greater than 9600 can cause communications problems between SourceGate II and the HMI emulator. There are a couple of additional things to keep in mind:

1) If you do allow the installer to install the 'hmicomm.drv' driver, this driver replaces the existing driver in the "comm.drv=" statement in the [boot] section of your 'system.ini' file. You will have to restart Windows to load the driver for use. Additionally, if another application had previously modified the "comm.drv=" statement with a driver of its own, that application's driver will no be longer active. This may cause problems when running the other application. (Your original serial port driver is left unmodified, should you need to reinstall it.)

2) If you do not allow the installer to install the 'hmicomm.drv' driver, you will probably experience communications problems with the emulator when running at baud rates higher than 9600 (this is a general Windows problem, and whether you experience it or not is dependent on your computer's exact hardware and configuration). If you experience problems communicating at higher baud rates, look for the 'hmicomm.drv' driver in the "comm.drv=" statement in the [boot] section of your 'system.ini' file. If this driver is not loaded, you will need to modify this line by hand to load the driver. 'Hmicomm.drv' is placed by the installer in the SourceGate II installation directory for your convenience should you need to use the driver at a later date.

3) This driver is not required and will not be installed when running SourceGate II under Windows 95.

3.0 Additional Hardware Requirements

The following hardware is recommended in addition to the hardware requirements listed in the SourceGate II documentation:

1) A PC compatible with 80486SX or faster processor.

2) 4 MB or more of RAM. If you are downloading files to the emulator greater than 500KB, for maximum performance, you should add additional memory in the same amount as the largest file you plan to download.

3) When running Windows in 386 Enhanced mode, a virtual memory permanent swap file of at least 8 MB is recommended. This is set in the Control Panel using the "386 Enhanced" icon. A permanent swap file improves the speed of Windows (and SourceGate II) because a permanent swap file is contiguous in terms of disk space.

4.0 Additional Software Requirements

Using an Ethernet emulator requires your PC to have Ethernet hardware and a compatible 'winsock.dll' file. SourceGate II has been tested with the 'winsock.dll' files from Microsoft Windows 95, Novell LAN WorkPlace, and FTP Software. Any 'winsock.dll' compliant with Version 1.1 of the Windows Sockets standard should work, but there are non-standard Winsocks available from other vendors that may result in some Winsock/SourceGate II combinations being unreliable.

A Windows Sockets 1.1 compatible TCP/IP stack will typically have a 'hosts' file that must be configured with an emulator name that you select and the Ethernet IP address that you assigned the emulator. The entry in the 'hosts' file should look something like this:

```
192.9.200.201  HMI_Emulator
```

(Note that you will need to know the IP address of the emulator and substitute that address for the address "192.9.200.201" given in the above example.)

You can now invoke SourceGate II and communicate with your Ethernet emulator by setting the Windows program item properties command line option to the following:

```
SG2 -iHMI_Emulator
```

If your Windows TCP/IP software includes 'ping' and 'finger' utilities, you can 'ping' the emulator to see if it is alive and you can 'finger' the emulator to see who is using it:

```
ping HMI_Emulator
finger @HMI_Emulator
```

5.0 Known Problems Affecting All Platforms

The following are known problems in this version of SourceGate II that are independent of the host platform:

5.1 Source Code Interface Options

Changing options in the Source Code Interface dialog (byte order, etc.) will not immediately update any open windows which are affected by the change.

The change for a window will take effect the next time the window is updated with new information.

For example, if the byte order is changed and the Watch window is on-screen, the new byte order will not effect the variables displayed in the Watch window until a Watch window update occurs.

5.2 Assembly Language Statements Mixed With Source In Trace (Note: Only affects standard trace displays)

The 'Trace/View/Source' menu item will appear not to work with a particular source code module that is in Mixed Debug mode. After a source code module has been enabled for Mixed Debug mode by executing the Command window command ':=M', selecting the menu item 'Trace/View/Source' in the trace display displays assembly language statements along with the original source code. This is identical to what is shown by the 'Trace/View/Disassembly/Source' menu selection. Use the ':=S' command in the Command window to get a source only display in trace without the corresponding disassembly information.

Note: Some disassembled instructions and bus activity may always be shown while the trace display is in 'Trace/View/Source' mode. This information usually appears when routines are traced that were written in assembly language and, thus, have no high-level language source code available for them. SourceGate II has no choice but to display this information as the "source" associated with the display cycles.

5.3 Double And Long Double Values In The Watch Window

If the value of double or long double variables in the Watch window are not correct, the most probable cause is a reversed byte order in the Source Code Interface dialog. Go to the Source Code Interface dialog (choose 'Config/Source Code Interface' from the main SourceGate II menu), and reverse the byte order strings for the Double and Long Double entries. Dismiss the dialog and on the next Watch window update the values for the double and long double variables should be correct.

5.4 Resetting Ethernet Emulators

Selecting 'Source/Reset Communications' when using an Ethernet emulator causes the Ethernet emulator to drop the connection.

5.5 Fast Single Step and Software Breakpoints turned Off by default

Support for two emulator firmware features, Fast Single Step and Software Breakpoints, are turned off by default. These new features have known problems with some older emulator firmware versions and will require a firmware upgrade to work properly on these emulators. The Fast Single Step option is set in the 'Config/Preferences' dialog and allows faster single stepping in the Codeview window. This feature is not reliable on all emulators and should be disabled if trouble is experienced while single stepping. Software Breakpoints allows up to a 128 breakpoints to be set in the Codeview window on emulators which support this feature. If the "Enable Software Breakpoints" option is checked in the 'Config/Source Code Interface' dialog, a Codeview window will display "0 of 128 BPs" in the bottom right corner when no breakpoints are set. Some emulators allow the user to select from a list of software breakpoint opcodes in the "SW Break Opcode" edit box in case the default opcode is already in use by the user's software. The memory where the software breakpoints are set must be writable by the emulator or the emulator will not break. Hardware breakpoints (maximum of four in Codeview) should be used if a breakpoint in ROM is needed or software breakpoints don't work properly in your firmware revision.

6.0 Known Problems Affecting The Windows Platform

The following are known problems in this version of SourceGate II that only affect the Microsoft Windows platform:

6.1 .INI File

Whenever you exit from SourceGate II, the windows that are open, along with their sizes, positions on screen, and other relevant information, are saved in a file named '<EmulatorName>.ini', where <EmulatorName> is the name of the emulator that you are using (e.g. '68000.ini', '8051.ini', etc.). When SourceGate II is restarted later, it will reference this file and reopen all of the windows that were active when you last exited, placing them at their previous locations on screen. Under normal circumstances this works well without any problems. However, should you change your Windows screen resolution, your SourceGate II windows may be reopened at odd locations and/or with unusable sizes. As a precaution, whenever you change your Windows screen resolution you should delete the SourceGate II '<EmulatorName>.ini' file.

Note, however, that deleting the SourceGate II '<EmulatorName>.ini' file will also destroy any saved preferences settings.

6.2 Parallel Port

On some emulators, downloading code over the parallel port will generate an "Error On Parallel Port 'LPTx'" message. This error occurs when SourceGate II times out while waiting for the emulator to respond during parallel port initialization.

The SourceGate II time out delay for parallel port initialization can be increased by manually editing the '<EmulatorName>.ini' file to add a [Parallel Port] section containing a "Maxretries=" line. The default "Maxretries=" value is 16. Try larger time out values until the parallel port download works.

If, for example, you are using a 68020 emulator, edit the 68020.ini file and add the following two lines:

```
[Parallel Port]
Maxretries=32
```

This will double the existing time out value.

7.0 Command (.CMD) Files

Included on the installation disk is a file called 'demo.cmd'. This file will be copied by the installer to your installation directory. This command file will perform certain tasks, such as defining reset and stack pointer vectors, reading the SourceGate II demo file, and resetting the emulator. If you allow the installer to start SourceGate II during the install process, this command file will be run automatically for you. From the SourceGate II menu bar, you can use 'File/Record' to record a command file and 'File/Execute' to execute a previously recorded command file. **Note: Command files only work in the Command window. They cannot be used to record operations in other windows.**

8.0 The Performance Analysis Card (PAC) (Not Applicable For BMDs and Lites)

If your emulator has the PAC option installed, there is a file included with the SourceGate II installation named 'pac.set' which will allow you to experiment with the PAC system while running the supplied SourceGate II demo files. To load this 'pac.set' file, choose 'Display/Performance Analysis' from the SourceGate II menu bar (to enable PAC), then choose 'PAC/Restore Setup', and enter the path of the supplied 'pac.set' file. Once loaded, this file will give histograms and data that is valid for the demo program. You can create your own 'pac.set' files with the 'PAC/Save Setup' menu option and use the 'PAC/Restore Setup' menu option to reload them later. **Note: You must have the PAC option installed on your emulator for this to work.**

9.0 New Features In Version 2.0.1

The following new features have been added in v2.0.1 of SourceGate II:

9.1 C++ Class Browser

C++ Class Browser and Sub-Browser windows have been added to allow you to browse all C++ classes in your C++ source file.

9.2 ELF/DWARF Support

SourceGate II now can read the ELF/DWARF binary file format.

9.3 Enhanced Trace Support

The Trace window is faster and shows source code in a different color for ease of identification. Note that not all emulators support enhanced trace.

9.4 Added Support For Windows 95

The Windows version of SourceGate II will run correctly under Windows 95.

9.5 GUI Memory Configuration Windows (Not Applicable For BMDs, Simulators, and Lites)

Certain emulators now have GUI Memory Configuration Windows.

9.6 Symbols In VASM And Tracking Assembly Windows

The VASM and Tracking Assembly windows now show symbols.

9.7 Memory Configurations Can Be Saved/Restored (Not Applicable For BMDs, Simulators, and Lites)

The "Save", "Restore", and "Restore Factory Configuration" commands now work from the "Config" menu. This allows multiple memory configurations to be defined, saved, and restored. Note that not all emulators support this feature.

9.8 Firmware Updates Now Supported (Not Applicable For BMDs and Simulators)

The "RD!" command can now be used to download the latest emulator firmware in those units that support it.

9.9 Memory Window Can Now Be Minimized

The Memory window now has a minimize button.

9.10 Enhanced Trace Source View Sped Up

In the enhanced trace, views that displayed source code were sped up by remembering the library modules that are named by the linker but have no corresponding source code. This keeps SourceGate from repeatedly trying to open nonexistent source modules for libraries provided by the compiler.

9.11 Batch File Pause Command Added

A Pause command for command window batch files has been added. The syntax is "/" for pause/resume or "/<seconds>" for a timed pause in seconds.

9.12 Fast Exit Option Added

A "FastExit" option was added to the "[Preferences]" section of the '.INI' files to allow exiting SourceGate without the "Do you want to exit?" dialog popping up. Presently this option can only be set by manually editing the '.INI' file.

10.0 Problem Fixes

For a list of problems that were present in version 1.2.0 of SourceGate II which have been fixed in version 2.0.1, please see the SourceGate II help file under the section "Release Notes/Problem Fixes".